

RECONSTRUCTED VEHICLE STANDARDS

AND

CRITERIA

EXHIBIT

Date: 12/1/84

RECONSTRUCTED VEHICLE INSPECTION STANDARDS
AND CRITERIA 12-1-84

I. GENERAL. Those components or items of equipment which have been added, substituted or modified in a manner which makes the vehicle subject to these Rules, shall be inspected in accordance with the standards and criteria set forth herein. In addition, all other items of equipment subject to the periodic vehicle inspection requirements shall be in conformance with the criteria established therein.

Those added, substituted, or modified components or items of equipment which have been inspected and approved in accordance with these Rules shall be deemed to meet the required equipment criteria of the periodic vehicle inspection requirements and all such components and items of equipment shall be required to meet the appropriate performance criteria on all subsequent periodic vehicle inspections.

Reconstructed vehicle inspectors shall inspect reconstructed vehicles in accordance with the applicable standards, criteria, and procedures established herein. Inspection certification for a reconstructed vehicle shall be issued only when, upon inspection, the reconstructed vehicle inspector determines that the reconstructed vehicle meets these standards and criteria.

II. INSPECTION STANDARDS, CRITERIA AND PROCEDURES - PASSENGER CARS AND TRUCKS

1. Vehicle Identification.

a. Requirements.

(1) The Vehicle Identification Number (VIN) or factory serial number of the vehicle, if any; and

(2) The license plate number, if any; and

(3) The emblem (validation sticker) number, if any, shall correspond with the numbers shown on the vehicle registration certificate, or other required document, and the reconstructed vehicle permit application.

b. Procedure. Visually inspect and confirm agreement between the various numbers. Record the

numbers on the inspection form. Note: Some vehicles may not have one or more of the above numbers; in these cases record "none" in the appropriate space on the inspection form.

2. Power Unit (Engine(s) or Motor(s))

a. Requirements. Every power unit that has been replaced with a power unit that is not an OREP power unit for the vehicle and every power unit that has been relocated to a position in the vehicle other than that provided by the original recognized manufacturer of the vehicle shall:

(1) Be located outside of any compartment of the vehicle that is intended for use by the driver or any passenger; and

(2) Be shielded from any compartment intended for use by the driver or any passenger by a flame-proof and fume-proof barrier; and

(3) Be securely fastened to the vehicle frame or unit body with bolts and mounting hardware designed to accommodate the power unit; and

(4) Have suitable screening or shielding provided for all moving parts and components which may cause personal injury and are accessible to inadvertent contact during normal operating condition, by persons standing outside of the vehicle; and

(5) Be provided with a driver-operated power control that automatically returns to the lowest power position when released by the driver. Vehicles equipped with cruise control are exempt when actuated; and

(6) Be provided with a driver-operated control that prevents the inadvertent starting or actuation of the power unit; and

(7) Be correctly described on the permit application form; and

(8) Vehicles operated without a hood or engine compartment covering shall have suitable screening or shielding provided for all moving parts which are exposed less than two inches from the hood line.

b. Procedure.

(1) Visually inspect for conformance to the location, mounting, and shielding requirements; and

(2) Have applicant operate the power unit to determine compliance with the control requirements; and

(3) Confirm the correct description of the power unit on the permit application form.

3. Fuel System (combustion power units only).

a. Requirements.

(1) Each fuel system orifice provided for the introduction of air to be used for the combustion of fuel (air intake) shall be equipped with a device which will:

(a) Prevent the ejection into the atmosphere of any ignited fuel/air mixture.

(2) All fuel system components, such as tank, tubing, hoses, clamps, etc., shall:

(a) Be located outside of any compartment intended for use by the driver or any passenger (except OEM or OREP components); and

(b) Be securely attached with fasteners designed for this purpose; and

(c) Not be positioned above, or nearer than three (3) inches to any exhaust system component, except in the engine compartment, unless appropriate shielding is provided (except OEM or OREP components); and

(d) Be positioned so as not to contact any moving vehicle component; and

(e) Be free of any fuel leakage.

(3) The fuel line connection to the engine shall be of a flexible design, and of a length sufficient to accommodate all engine vibrations and movements of the engine with respect to the vehicle frame.

(4) The fuel tank shall:

(a) Not be located in the engine compartment (except OEM or OREP components); and

(b) Be shielded from any compartment intended for use by the driver or any passenger by a flame-proof barrier (except OEM or OREP components); and

(c) Be equipped with a filler cap designed to prevent fuel spillage from the filler opening when the cap is in place; and

(d) Be located within the lateral perimeter of the vehicle frame or unit body to minimize crash damage rupturing.

(5) Auxiliary liquid fuel tanks described as an additional fuel tank and any other components attached directly thereto designed to supplement the vehicle's liquid fuel carrying capacity beyond that provided by the vehicle manufacturer shall meet the requirements of Regulation VESC-22 (Minimum Performance Standard for Auxiliary Liquid Fuel Tanks).

b. Procedure.

(1) Visually inspect for the installation of the required fuel system components; and

(2) Visually inspect for conformance to the location, mounting, and shielding requirements; and

(3) Have applicant start the engine. Visually inspect the components for fuel leakage; and

(4) Have the applicant abruptly increase the engine speed several times to approximately twice the speed of idle; observe the adequacy of the flexible fuel line between the engine and the frame.

4. Exhaust System (combustion power units only).

a. Requirements.

(1) All reconstructed vehicles shall be equipped with a system of components to conduct exhaust gases from the engine to a safe discharge point outside of the vehicle.

(2) All exhaust system components, such as manifolds, headers, exhaust pipes, resonators, mufflers, converters, tail pipes, etc., shall:

(a) Be located outside of any compartment intended for use by the driver or any passenger; and

(b) Be securely attached with fasteners designed for this purpose; and

(c) Be positioned so as not to contact any moving vehicle component; and

(d) Be free of any leakage; and

(e) Have suitable shielding provided for all components which may cause personal injury and are accessible to inadvertent contact by persons standing outside of the vehicle under normal operating conditions; and

(f) Suitable heat shielding shall be provided for:

(i) Any catalytic converter located less than three inches below the floor pan or from any flammable material; and

(ii) Any other exhaust system component located less than one and one-half inches below the floor pan or less than three inches from any flammable material; and

(g) Have no temporary patches or makeshift repairs. Lasting repairs with materials which have been specifically designed for such purpose and are used in accordance with the manufacturer's recommendations are acceptable.

(3) The exhaust system shall contain a muffler or mufflers.

(4) The exhaust system shall discharge the engine exhaust gases outward from the vehicle to the atmosphere; and

(a) Exhaust systems on property-carrying vehicles shall discharge the exhaust gases to the rear of that part of the vehicle designed and normally used for carrying the driver and passengers; and

(b) Exhaust systems on passenger vehicles shall discharge the exhaust gases at a location to the rear of the vehicle body or direct the exhaust gases outward from the side of the vehicle body at a location rearward of any operable side window; and

(c) No part of the exhaust system shall pass through any area of the vehicle that is used as a passenger compartment, nor in close proximity to the fuel system without being properly shielded. No part of the exhaust system may contain a muffler cut-out or by-pass.

b. Procedure.

(1) Visually inspect for the installation of the required components; and

(2) Visually inspect for conformance to the location and mounting requirements; and

(3) Have the applicant start the engine. Check entire exhaust system for leaks. (Temporarily covering the tail-pipe outlet(s) should indicate pressure and no audible [hissing] indication of leakage.)

5. Transmission.

a. Requirements. Every transmission that is not an OREP or an OEM transmission for the vehicle, and every transmission that has been relocated to a position in the vehicle other than that established by the recognized manufacturer of the vehicle when new shall:

(1) Be located outside of any compartment of the vehicle that is intended for the use of the driver and any passenger; and

(2) Be securely mounted in the vehicle with bolts and mounting hardware designed to accommodate the transmission; and

(3) Be provided with controls which are operable through the entire range of gear selection by the seated driver without interfering with the operation of any power unit control or steering control; and

(4) If equipped with a manual transmission having other than a three speed forward standard "H" pattern and the vehicle is manufactured after January 1, 1968, be provided with identification of the shift lever pattern permanently displayed in view of the driver (FMVSS No. 102 - 49 CFR §571.102); and

(5) If powered with a combustion engine and equipped with an automatic transmission, be provided with an interlock that causes the engine starter to be inoperative when the transmission shift lever is in a forward or reverse drive position; and

(6) If manufactured after January 1, 1968, powered with a combustion engine, and equipped with an automatic transmission; be provided with a shift lever which:

(a) Has a neutral position located between the forward drive positions and the reverse drive positions; and

(b) Moves in a clockwise direction from the reverse drive positions to the forward drive positions when mounted on the steering wheel column; and

(c) Has any optional "park" position located at the end of the selection sequence adjacent to the reverse drive position; and

(d) Has identification of the shift lever positions permanently displayed in view of the driver (FMVSS No. 102 - 49 CFR §571.102); and

(7) Have any opening through the floor or into the engine compartment from the driver's compartment covered and sealed.

b. Procedure.

(1) Visually inspect for conformance to mounting, location, shift lever sequence, shift lever position identification, and covering and sealing of any opening requirements; and

(2) When the vehicle is equipped with an automatic transmission, have applicant attempt to operate the engine starter with the shift lever in each position other than "park" and "neutral"; and

(3) Have applicant operate the transmission shift lever through its entire range while seated in the driver's position to determine the accessibility and freedom from interference of the control; and

(4) Check permit application for the correct description of the transmission.

6. Suspension System.

a. Requirements.

(1) Every reconstructed vehicle shall be equipped with a flexible primary suspension component (spring, torsion bar, etc.) mounted between the vehicle frame, or unit body, and each axle, or other component to which the wheels are mounted (trailing arms, control arms, etc.), which:

(a) Permits vertical relative movement between the frame and the axle; and

(b) Permits negligible lateral (side to side) or longitudinal (front to rear) horizontal movement between the frame and the axle; and

(c) Is securely attached to both the frame and the axle with mounting hardware designed for this purpose; and

(d) Provides adequate support for the safe control of the vehicle under all normal conditions of operation upon public streets and highways.

(2) The suspension system of a reconstructed vehicle shall not be altered, supplemented or adjusted to increase the bumper height of the vehicle by more than the maximum requirements of the bumper height law (Act 291, SLH 1984).

(3) Whenever the suspension system provided by the original recognized vehicle manufacturer has been altered, supplemented, or adjusted in a manner which changes the height of the vehicle frame:

(a) All suspension components on the same axle shall be changed in an equivalent manner; and

(b) The lateral (side to side) aspect of the vehicle frame shall be horizontal when the vehicle is at rest on a level surface; and

(c) The longitudinal (front to rear) slope of the vehicle is permitted so long as all other suspension system and body height requirements within this appendix are satisfactorily met.

(4) Each position on an axle of a reconstructed vehicle where one or more wheels are mounted shall be equipped with at least one shock absorber which:

(a) Is mounted between, and securely attached to, the axle and the frame with mounting hardware designed for this purpose; and

(b) Provides a damping action on all vertical motion (double acting) throughout the entire vertical motion range of the primary suspension component.

(5) At each position where one or more wheels are mounted, the suspension system of a reconstructed vehicle shall provide a minimum range of vertical motion between the axle and the frame of two inches for compression and two inches for rebound when the empty vehicle is standing upon a level surface.

(6) The suspension system of a reconstructed vehicle shall permit visible vertical motion upon the application of downward pressure at a point on the chassis above each flexible primary suspension component.

(7) The range of movement between the axle and the frame of a reconstructed vehicle shall be limited in a manner which, under all normal conditions of suspension compression and rebound, will prevent:

(a) Contact between the wheels, including the tires, and any part of the vehicle frame or chassis; and

(b) Contact between the suspended and unsuspended portions of the vehicle except at suspension component attachment points and at those points which are designed and suitably cushioned to limit extreme suspension movement; and

(c) Prevent any brake hose from becoming fully extended.

(8) Any primary or supplemental coil springs used in the suspension system of a reconstructed vehicle shall not be capable of being fully compressed or fully extended within the limits of vertical motion of the system.

(9) A reconstructed vehicle shall have sufficient ground clearance between the vehicle undercarriage and the road surface on which the vehicle rests. Sufficient ground clearance shall be determined in the following manner with the vehicle resting on a level surface.

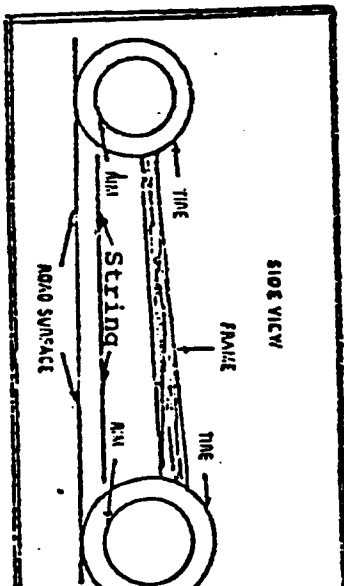
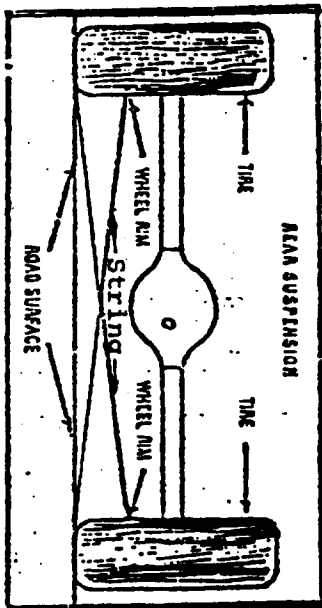
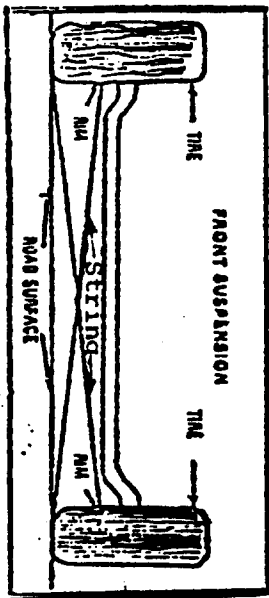
(a) Front or rear suspension ground clearance: Extend a string from the bottom of the wheel to the bottom of the tire on the opposite side of the same axle. Extend another string in the same manner from the opposite direction of the same axle. The two strings should form an "X" under the center portion of the axle being tested (see diagram). No part of the vehicle body or undercarriage should be located below the top half of the "X" formed by the two extended strings.

(b) Front to rear ground clearance: Extend a string from the bottom of the front wheel to the bottom of the rear wheel located on the same side of the vehicle (see diagram). No part of the body or undercarriage should be located below the extended string.

(10) No less than thirty percent of the empty weight of a reconstructed vehicle shall be supported by either the front axle or the rear axle of the vehicle.

(11) When used in the suspension system of a reconstructed vehicle, all leaf spring hanger (shackle) extensions shall:

PROCEDURE TO CHECK GROUND CLEARANCE



(a) Have a maximum effective length of no more than two inches over the OEM shackle as measured between the upper and lower bolt centers; and

(b) Be assembled with bolts and hangers specifically designed with adequate extra strength for this purpose.

(12) Ball joint spacer blocks or ball joint "lift kits" which are attached with a single bolt shall not be used in the suspension system of a reconstructed vehicle.

(13) No more than two spacer inserts shall be used between the winds in any coil spring used as a flexible primary suspension component in a reconstructed vehicle.

(14) No more than one spacer block shall be used under any front coil or leaf spring used as a flexible primary suspension component.

(15) No coil spring, leaf spring, or torsion bar used in the suspension system of a reconstructed vehicle shall be welded or otherwise repaired except by replacement.

(16) Every reconstructed vehicle equipped with a suspension system containing other than OEM or OREP components, or containing modified OEM or OREP components, shall be tested for conformance to the original vehicle manufacturer's caster, camber and toe-in suspension system alignment criteria by a vehicle repair facility suitably manned and equipped to perform such testing.

b. Procedure.

(1) The vehicle shall be placed on a surface that is approximately flat and level.

(2) Visually inspect for conformance to Requirements 6.a.(1)(c) and (d); (2); (3)(a) and (b); (4)(a); (7)(a), (b), and (c); (8); (12); (13); (14); and (15).

(3) Determine conformance to Requirements 6.a.(1)(a); (4)(b); and (6) by applying cyclic vertical pressure, at the front and at the rear, on any appropriate point of the suspended portion of the vehicle. There shall be noticeable vertical movement between the frame and the axle. The movement shall cease within two cycles of the suspension system after the application of the cyclic pressure is terminated.

(4) Determine conformance with Requirement 6.a.(1)(b) by applying cyclic horizontal pressure to a side and to the front or rear of the vehicle at the approximate height of the vehicle frame. There shall be negligible horizontal movement between the vehicle body or frame and the axles.

(5) Determine conformance to Requirement 6.a.(5) by visually examining, and measuring, where necessary, the range of vertical travel available between the vehicle frame and axles on compression and on rebound.

(6) Determine conformance with Requirement 6.a.(9) (a) and (b) by visually examining the underside of the vehicle for any part which extends below the top half of the "X" formed by the strings drawn across the front and rear suspension system of the vehicle or below the string which is drawn along the side of the vehicle.

(7) Determine conformance with Requirement 6.a.(11)(a) by measuring the distance between the upper and lower bolt centers on leaf spring hanger extensions (shackles).

(8) Determine conformance with Requirement 6.a.(11)(b) by examining the shackle hanger manufacturer's specifications for the product. These specifications shall be provided by the owner of the reconstructed vehicle. In no case will extensions (shackles) that are not substantially thicker and wider than the original be permitted.

(9) Reconstructed vehicles which have had extensive modifications affecting the proportionate weight distribution on the front and the rear axles such as: power unit relocation, body replacement, axle relocation or change in wheelbase dimensions; shall have the amount of the empty weight of the vehicle supported by the front and by the rear axle determined at an official weight scale. The reconstructed vehicle owner shall provide an official weight certificate showing these axle loads. Verify conformance with Requirement 6.a.(10).

(10) Verify evidence of alignment testing provided by the reconstructed vehicle owner in conformance with Requirement 6.a.(16).

7. Steering System.

a. Requirements.

(1) The steering control mechanism of a reconstructed vehicle shall:

(a) Consist of a control device attached to a shaft in a manner such that the rotary motion of the control device turns the shaft which will cause the moving vehicle to move to the right when the control is rotated in a clockwise direction and to the left when the control is rotated in a counterclockwise direction; and

(b) Be securely attached to a structural member of the vehicle; and

(c) Be located forward of the driver's seating position; and

(d) Be operable through its entire control range by a person seated against the seat back at the driver's position; and

(e) Not interfere with the driver's vision through the windshield nor interfere with any other vehicle control mechanism; and

(f) Be so constructed that no components or attachments, including horn actuating mechanisms and trim hardware can catch the driver's clothing or jewelry during normal driving maneuvers.

(2) Any steering wheel (a circular steering control device) that has been replaced by other than an OEM or an OREP device, or has been modified shall:

(a) Have a major axis (largest diameter) of no less than 13 inches; and

(b) Have no other component or structure located between the driver and the device except safety belts; and

(c) Have no other component or structure located in the plane of rotation nearer than 3 inches outside of the path of the maximum radius of the control device; and

(d) Have a range of rotation (lock to lock) of no less than 2 turns (360 degree rotation per turn) and no more than 6 turns and shall be free of any jamming or binding throughout this range.

(3) A reconstructed vehicle equipped with a steering system that has been modified in any manner except replacement of the steering wheel shall:

(a) Be tested for conformance to the original vehicle manufacturer's caster, camber and toe-in alignment criteria by a vehicle repair facility suitably manned and equipped to perform such testing; and

(b) Have a minimum turning diameter of no more than 65 feet in either direction, measured to the outside edge of the outside front wheel tire track; and

(4) The steering gear box or other mechanism which translates the rotary motion of the control shaft to linear motion to move the wheels shall be securely attached to the vehicle frame with hardware designed for this purpose.

(5) All components of the steering system shall be connected with fittings designed for the purpose and adjusted to eliminate any unnecessary free play or lash. Steering system lash shall be within the limits shown in the following table:

<u>Steering Wheel Diameter</u>		<u>Allowable Lash</u>	
<u>In.</u>	<u>Cm.</u>	<u>In.</u>	<u>Cm.</u>
16 or less	40 or less	2	5.1
18	46	2 1/4	5.7
20	51	2 1/2	6.4
22	56	2 3/4	7.0

(6) All welding used in the modification of any steering system component or attachment shall be accomplished by an electric arc welding process.

(a) Gas welding is permitted for those types of metal not suitable for electric arc welding.

(b) No welding repairs or welding modifications of any type shall be permitted on cast iron or factory cast steering components, including the steering shaft.

b. Procedure.

(1) Inspect with the vehicle standing or, where required, operated on a surface that is approximately flat and level.

(2) Visually inspect for conformance to Requirements 7.a.(1)(a), (b), (c), and (f); and (4); and

(3) Have applicant, while seated in the driver's position of the vehicle, operate the steering control throughout its entire range (with engine running for vehicles equipped with power steering). Verify conformance to Requirements 7.a.(1)(d) and (e); and (2)(b), (c), and (d); and

(4) Measure the major axis (diameter) of the steering wheel for conformance to Requirement 7.a.(2)(a); and

(5) With the vehicle in a standing position and the engine running, have applicant turn the steering wheel full right or left and execute a complete 360 degree turn with the vehicle; repeat the maneuver in the opposite direction. Measure each turning circle diameter to the outside of the tire track of the outside front tire. Check measurement for conformance to Requirements 7.a.(3)(b); and

(6) With the vehicle in a standing position, inspect all steering system components, pitman arm, idler arm, tie rods, etc. for proper connecting fittings and check for worn or loose connections in conformance with Requirement 7.a.(5). Use the following procedure to check steering system lash for conformance to the tolerances listed in the table in Requirement 7.a.(5).

(a) With the steered wheels in the straight ahead position, turn the steering wheel until turning motion is observed at the steered wheels.

(b) Align a reference point on the steering wheel rim with a ruler.

(c) Slowly turn the steering wheel in the opposite direction until motion is observed at the steered wheels.

(d) Measure the distance the reference point on the steering wheel rim has moved with reference to the ruler.

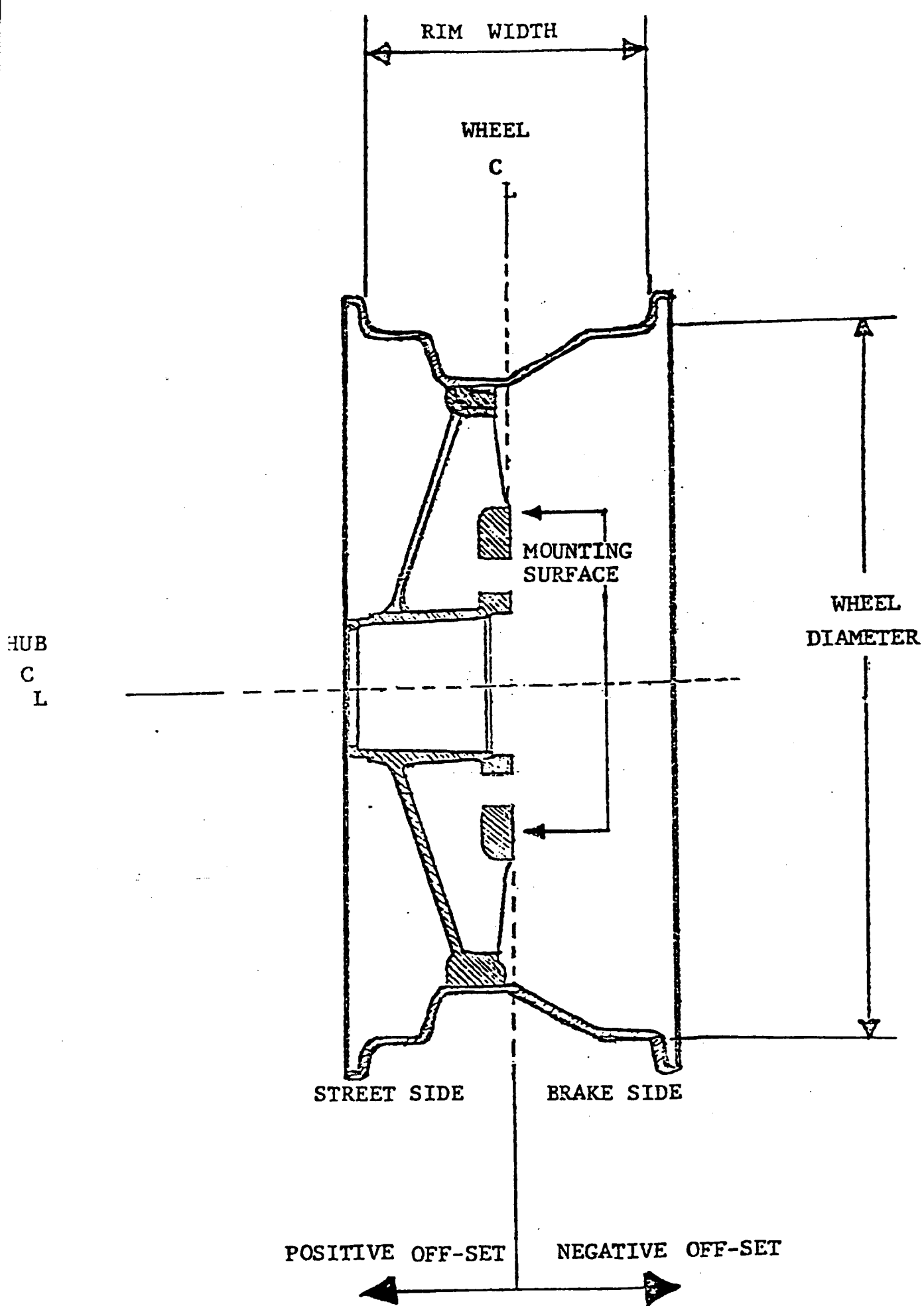
(7) Verify evidence of alignment testing provided by the reconstructed vehicle owner in conformance with Requirement 7.a.(3)(a); and

(8) Visually examine any welding performed on the steering system components or attachments.

8. Rims and Tires.

a. Requirements.

(1) The rims mounted on a reconstructed vehicle, if other than OEM (including options) or OREP; i.e., special rims, shall meet or exceed the specifications established for such rims by SFI; and



(2) All rims mounted on a reconstructed vehicle shall be free of cracks, rim dents, warpage, and repairs of any kind; and

(3) All rim mounting studs, nuts, or bolts shall be present, in good condition, and securely tightened; and

(4) All rims mounted on a particular axle, or equivalent front or rear suspension component, shall be of identical size, design, and material (all front rims the same and all rear rims the same); and

(5) The rim diameter of the rims mounted on the front axle shall be no less nor no greater than one and one-half inch as the rim diameter of the OEM rims for the suspension system used. Larger or smaller rims may be used on certain front suspension system which has been modified or adjusted to correctly accommodate such rims; and

(6) The use of any combination of reverse mounted or special rims, adapters, or spacers shall not increase the negative off-set of the front rims by more than one and one-half inch over the standard or optional rims whichever is greater as specified by the recognized manufacturer of the vehicle when new. The reconstructed vehicle owner shall provide the rim off-set specifications and the manner of measurement from the recognized manufacturer of the vehicle when it was new. The use of negative off-set rims on any front wheel drive (FWD) only, passenger type vehicle is prohibited; and

(7) Although it is recommended that all tires mounted on the rims of a reconstructed vehicle be of the same type, radial tires may be mixed with other types of tires as long as the tires are the same type on each axle and that the radial tires are mounted on the rear axle; and

(8) All tires mounted on the rims of a reconstructed vehicle shall be of a size designated for use with a rim of that type and width. Front tires shall measure a minimum of 40% of the tread width of the rear tires; and

(9) All tires used on the rims of a reconstructed vehicle shall have a load rating of sufficient capacity to support the weight imposed on both the tire and rim; and

(10) All tires mounted on the rims of a reconstructed vehicle shall be tires designed specifically for highway use (FMVSS No. 109 and No. 119) including those designed for highway use and retreaded in accordance with FMVSS No. 117. The use of tires designed, retreaded, or designated for any other purpose is not permitted; and

(11) Every tire mounted on the rims of a reconstructed vehicle shall have an average tread depth of no less than $2/32$ of an inch; and

(12) The tread surface of tires (surface that contacts the road) mounted on a reconstructed vehicle shall not extend laterally beyond the outboard edge of the fender, the fender well, or other wheel enclosure including flared fender openings when viewed from above.

b. Procedure.

(1) Visually inspect the rims and tires for conformance to Requirements 8.a.(2) and (3); and

(2) Make appropriate measurements to determine conformance to Requirements 8.a.(6), (11), and (12); and

(3) Inspect markings on the tire sidewalls to determine conformance to Requirements 8.a.(4), (5), and (7); and

(4) Compare vehicle owner furnished specifications on rim type and width with the tire manufacturer's specifications to determine compliance with Requirement 8.a.(8). (Tire distributors and dealers have tabular information indicating compatible tire sizes and rim type/widths); and

(5) Determine compliance with Requirement 8.a.(9) by comparing the load rating marked on the tire sidewall with the weight imposed on the tire. The weight imposed on a tire shall be determined from the empty vehicle weight in the following manner:

(a) If the actual empty vehicle axle loads (weight on an axle) are known, or are furnished, the weight on a tire mounted on that axle shall be 110 percent of the axle load divided by the number of wheels mounted on that axle; or

(b) If the actual axle loads are unknown, the axle nearest the power unit (engine) of the vehicle shall be considered to support 60 percent of the empty vehicle weight and the axle farthest from the power unit to support 40 percent of the empty vehicle weight. When the axle loads have been determined in this manner, compute the wheel load as in subparagraph 8.b.(5)(a) above; and

(6) Determine conformance to Requirement 8.a.(10) by examining the markings on the tire sidewalls. The

marking "DOT" should appear on every tire manufactured for highway use and also on every tire retreaded for highway use. Tires manufactured prior to September 1, 1974 and tires made for vehicles manufactured before 1948 will not be marked as specified; however, these tires shall be of a standard automotive type and have a tread pattern similar to that used on tires designated for highway use and marked with the symbol "DOT". Tires having restrictive markings of any kind or having markings indicating a specific use, other than highway use, are not permitted.

(7) Determine compliance with Requirement 8.a.(1) by examining the rim manufacturer's certification which indicate that the rim meet or exceed the SFI specifications. The reconstructed vehicle owner shall furnish the documents.

9. Brake Systems.

a. Requirements.

(1) Every reconstructed vehicle shall be equipped with a service brake system which will:

(a) Provide braking action at each wheel except OEM system; and

(b) Is actuated by pressure applied to a pedal control by the driver's foot; and

(c) Is actuated primarily by the use of hydraulic fluid (actuation primarily by mechanical means, rods, or cables, is not permitted even if the OEM system was so designed).

i. If the original engine, power train and brake system are unaltered (OEM or OREP), and the brake system is mechanical, the brake system may be left mechanical.

(2) Reconstructed vehicles with a date of manufacture on or after January 1, 1968 shall be equipped with a service brake system which:

(a) Is designed to prevent the complete loss of the braking function in the event of a rupture or leakage-type failure of any single pressure component except structural failures of the master cylinder (split system required); and

(b) Is equipped with a brake failure warning lamp or master cylinder low level indicator lamp visible to the driver.

(3) Brake tubing and brake hose installed on a reconstructed vehicle shall be:

(a) Securely attached with hardware designed for this purpose, in a manner which will prevent chafing, kinking, or other mechanical damage; and

(b) Of sufficient length and flexibility to accommodate, without damage, all normal movements of the parts to which it is attached; and

(c) Located in a manner that prevents contact with any component of the vehicle's exhaust system.

(4) All tubing, other than OEM, used in the service brake system of a reconstructed vehicle shall be of a type that meets the requirements of SAE Recommended Practice J1047, Tubing - Motor Vehicle Brake System, Hydraulic.

(5) All hoses, other than OEM, used in the service brake system of a reconstructed vehicle shall be of a type that meets the requirements of SAE Standard J1401a, Road Vehicle - Hydraulic Brake Hose for use with Non-petroleum Base Hydraulic Brake Fluids.

(6) The service brake system of a reconstructed vehicle shall be capable of stopping the vehicle within a distance of 25 feet from a speed of 20 miles per hour without departing from a lane 12 feet wide with no corrective steering action applied.

(7) Every reconstructed vehicle shall be equipped with a parking brake system which:

(a) Provides braking action on at least two wheels of the same axle; and

(b) Is actuated by a control that is operated by the driver's hands or foot and remains set in the applied position until released by a separate action; and

(c) Is actuated by a means independent of the service brake system except that the brake shoes and drums, or pads and discs, may be common to both the service and parking brake systems.

(8) The parking brake system of a reconstructed vehicle shall be capable of holding the vehicle stationary on any incline on which the vehicle is operated.

b. Procedure.

(1) Visually inspect the components of the service brake system and the parking brake system for conformance to Requirements 9.a.(1)(a), (b), and (c); (2)(a); (3)(a), (b), and (c); and (7)(a), (b), and (c).

(2) Determine conformance to Requirement 9.a.(2)(b) by setting the parking brake control in the applied position; turn the ignition switch to the "on" position. The illuminated brake failure indicator lamp should be visible at the driver's position.

(3) Determine compliance with Requirements 9.a.(4) and (5) by visual examination of the brake tubing and brake hoses; specifications shall be supplied by the reconstructed vehicle owner.

(4) Have applicant operate the reconstructed vehicle at a speed of 20 miles per hour on a clean, dry, level surface, apply the service brakes and measure the stopping distance for conformance to Requirement 9.a.(6).

(5) Determine conformance with Requirement 9.a.(8) by having the applicant set the parking brake control and start the engine of the reconstructed vehicle:

(a) If the vehicle is equipped with an automatic transmission, have applicant move the selector to the "drive" position (manually hold the parking brake if movement of the selector automatically releases the parking brake), and increase the engine rpm to about twice the idle speed. The vehicle should not move.

(b) If the vehicle is equipped with a manual transmission, have applicant depress the clutch pedal, move the gear shift lever to the lowest forward speed position, increase the engine rpm to about twice the idle speed, and slowly release the clutch pedal. The vehicle should not move.

10. Vehicle Body.

a. Requirements.

(1) Body Structure. The body structure of a reconstructed vehicle shall be free of sharp edges and projections in all interior and exterior locations where they may be contacted by persons in the normal use and care of the vehicle. This requirement does not include those locations usually accessible only when the vehicle is hoisted or partially dismantled for the purpose of maintenance or repair.

(a) The body to frame mounts shall be in accordance with OEM specifications with a maximum three inch body block, provided the body block manufacturer's instructions for modification of the steering column, brake hose location and pedal controls are followed when required. The reconstructed vehicle owner shall provide the instructions and evidence that the modifications were performed correctly.

(2) Doors and Latches.

(a) A reconstructed vehicle shall be provided with a means of entry and exit on each side of the vehicle which provide ready access to the seats in the vehicle by vehicle occupants.

(b) On vehicles not equipped with doors, approved type occupant restraining devices shall be installed within the vehicle and be readily accessible to the occupants.

(c) The doors used to provide access to the passenger compartment of a reconstructed vehicle shall be of a hinged type and shall be readily operable and be provided with a two-position self-acting latch which functions in each latching position to keep the door from opening. This requirement does not apply to doors that are designed to be easily attached to or removed from reconstructed vehicles designed for operation without doors.

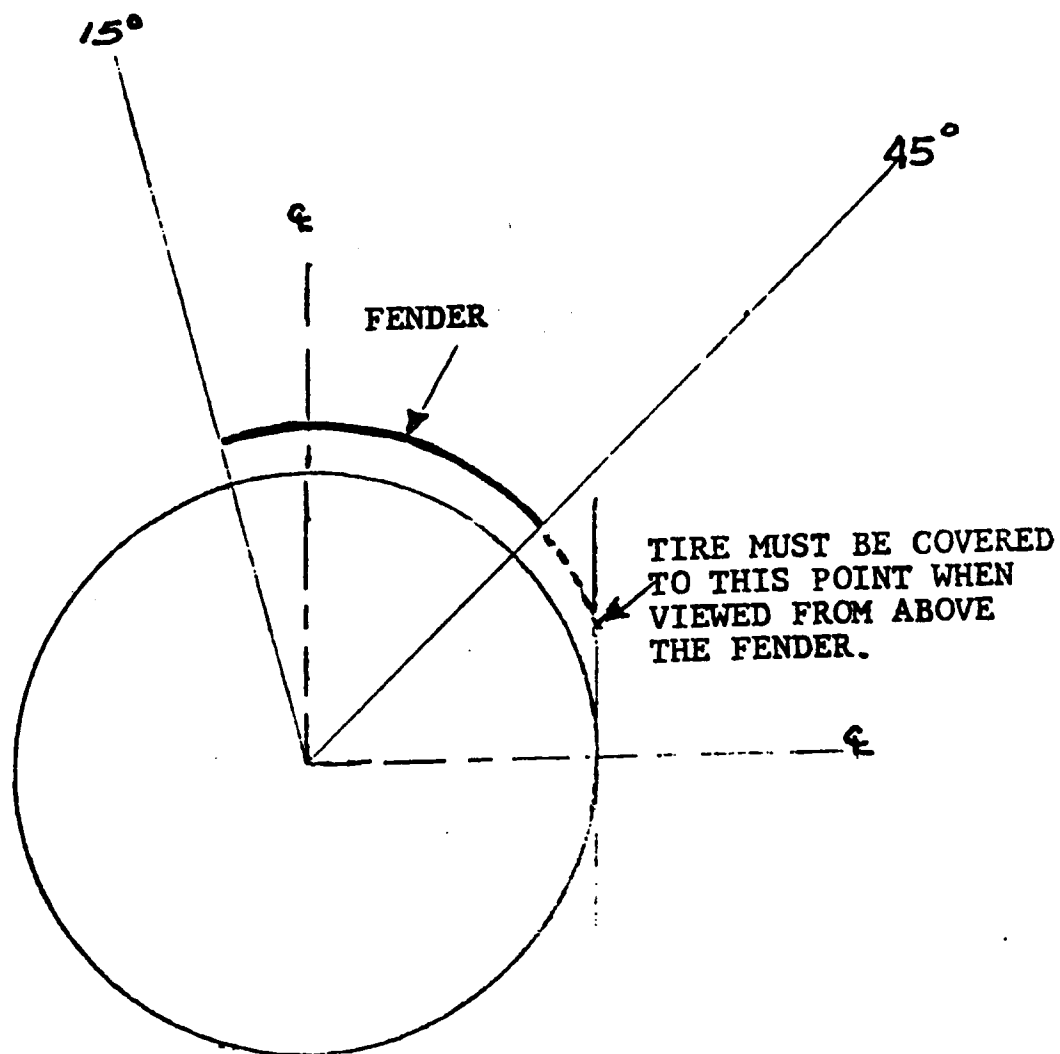
(d) All doors shall be equipped with a latch control on the interior of the door and at least one door on each side of the vehicle shall be equipped with an exterior latch control.

(3) Hood and Trunk Latches.

(a) A hood, a trunk lid, or any compartment cover forward of the windshield, which opens along the edge toward the front of a reconstructed vehicle shall be equipped with a two-position self-acting latch which functions in each latching position to keep the hood, lid, or cover closed. A minimum of two hood pins designed for that purpose can be substituted for the two-position self-acting latch.

(b) A hood, trunk lid, or compartment cover which opens along an edge toward the sides or the rear of a reconstructed vehicle shall be equipped with at least one latch which holds the hood, lid, or cover in the closed position.

(4) Fenders. Each tire of a reconstructed vehicle which contacts the surface of the road shall be equipped



MINIMUM FENDER REQUIREMENT

with a fender, or other body structure, which covers the entire width of the tire tread above that portion of the circumference from 15 degrees in front to 45 degrees to the rear of the vertical line through the center of the wheel hub and covers the full rear portion of the tire tread when viewed from above the fender. Note: Any attachment added to the body or fender of the vehicle to meet the requirements of this part shall be securely mounted and free of any sharp edges or protuberances.

(5) Windshield. Every reconstructed vehicle shall be equipped with a windshield which meets the following criteria:

(a) Is made of safety glass designated as American National Standard AS-1 safety glazing material; and

(b) If not an OEM or OREP windshield, a windshield that provides continuous frontal protection over the entire width of the passenger compartment forward of the driver's seat; and

(c) The windshield has a minimum unobstructed vertical height of no less than 6 inches over its entire width.

(6) Windows. All windows, including any rear window, provided in a reconstructed vehicle shall be of the appropriate American National Standard AS designated safety glazing material specified for the window location in FMVSS No. 205, Glazing Materials.

(7) Driver Visibility. Every reconstructed vehicle in which the windshield, the windows to the immediate right and left of the driver, the rear window in passenger cars, or the driver's seat has been re-located shall provide the driver with:

(a) Continuous horizontal visibility through a 180 degree arc extending forward from 90 degrees to the left to 90 degrees to the right, measured from a point 6 inches forward of the center of the driver's seat back, with the seat in its most rearward position. The driver's horizontal visibility may be interrupted by door pillars and vertical framing at the edges of the windshield not to exceed 3 inches in width each (except OEM). A vertical center joining strip no greater than 1 inch in width is permitted on a two-piece windshield unless OEM installed.

(b) An uninterrupted, except for windshield wiper components and framing, forward view of the road surface, spanning the width of the front of the vehicle,

starting at a point no more than 35 feet forward of the driver's seat back with the seat in the rearmost position.

(c) An unobstructed indirect view to the rear, through use of an interior rearview mirror, of the road surface at least 12 feet wide starting at a point no more than 35 feet to the rear of the driver's seat back with the seat in the rearmost position or have an outside rearview mirror of unit magnification; or

(d) Have an unobstructed view to the rear, through use of an exterior rearview mirror of unit magnification, adjustable in both horizontal and vertical directions, mounted on the driver's side of the vehicle, and capable of viewing an area 8 feet outward at a point 35 feet to the rear of the driver's seat back with the seat in the rearmost position.

(8) Windshield Wipers and Washers.

(a) A reconstructed vehicle may be equipped with properly functioning windshield wipers and washers which are OEM or OREP equipment provided that all windshield wipers shall be power operated.

(b) A reconstructed vehicle shall be equipped with a two or more speed power operated device, which is controlled by the driver and capable of cleaning or clearing rain and moisture from no less than 50 percent of the windshield surface.

(c) Vehicles with a date of manufacture on or after January 1, 1968 shall be equipped with a washer system that effectively distributes fluid over the wiped or cleared area of the windshield.

(9) Seats and Safety Belts.

(a) Every reconstructed vehicle shall be equipped with a regular driver's seat designed for this purpose, securely anchored to the vehicle structure, and located in a position that permits the seated driver to reach all controls which are required to operate the vehicle safely.

(b) All passenger seats provided in a reconstructed vehicle shall be securely anchored to the vehicle structure.

(c) Reconstructed passenger cars with a date of manufacture on or after January 1, 1968 shall be equipped with lap type safety belt, properly anchored to the vehicle structure, for each seating position

and, except for convertible or open body type passenger cars, a shoulder type safety belt, properly anchored to the vehicle structure, for each outboard (side of the seat cushion is within 12 inches of the interior surface of the vehicle side) front seating position (FMVSS No. 208 - 49 CFR §571.208).

(d) All reconstructed vehicles, except buses, with a date of manufacture on or after July 1, 1971 shall be equipped with a lap type safety belt, properly anchored to the vehicle structure, for each seating position and; except for convertibles, open body passenger vehicles, and walk-in type vans; a shoulder type safety belt, properly anchored to the vehicle structure, for each outboard (outboard side of the seat cushion is within 12 inches of the interior surface of the vehicle side) front seating position (FMVSS No. 208 - 49 CFR §571.208).

(e) Reconstructed buses with a date of manufacture on or after July 1, 1971 shall be equipped with a lap type safety belt, properly anchored to the vehicle structure, for the driver's seating position (FMVSS No. 208 - 49 CFR §571.208).

(10) Odometer/Speedometer. Every reconstructed vehicle shall be equipped with a properly functioning speedometer and odometer as provided by state law.

(11) Lamps and Reflectors.

(a) Every reconstructed vehicle shall be equipped with all exterior lamps and reflectors provided by the original manufacturer of the vehicle or of a type approved under Part II, 10.a.(11)(c) of subparagraph below.

(b) Every reconstructed vehicle shall be equipped with lamps and reflectors as required by FMVSS No. 108 - 49 CFR §571.108.

(c) All exterior lamps and reflectors shall be of a type that is approved by the Director of Transportation.

(12) Horn. Except for OEM, every reconstructed vehicle shall be equipped with an electrically powered or air operated sound warning device that:

(a) Has an operating control readily accessible to the seated driver; and

(b) Capable of emitting sound audible under normal conditions from a distance of not less than 200 feet, but no horn or other warning device shall emit an unreasonably loud or harsh sound or a whistle; and

(c) Electrically powered horns shall meet the performance requirements of SAE Standard J377, Performance of Vehicle Traffic Horns.

(13) Batteries. Every battery used to store electrical energy for the electrical system in a reconstructed vehicle shall:

(a) Be securely attached in a permanent mounting specifically designed for the purpose; and

(b) Be provided with adequate ventilation to the exterior of the vehicle; and

(c) If mounted within the passenger or cargo area of the vehicle, be provided with an insulating cover and a drain to the exterior of the vehicle, both specifically designed for the purpose.

(14) Electrical Wiring, Switches, and Indicators.

(a) All electrical wiring in a reconstructed vehicle shall be covered with insulation in good condition, appropriately secured to the body or frame with fittings designed for this purpose, provided with proper terminal connectors at electrical circuit attachment points and, except for the ignition, starter and horn circuits, be equipped with appropriate fuses or circuit breakers.

(b) All electrical switches shall be securely mounted in a manner that protects the switch terminals from inadvertent contact in normal use.

(c) Illuminated indicator lamps, clearly visible to the driver, shall be provided to indicate the use of headlamp high beams, electrical turn signals, and hazard warning lamps.

(d) The speedometer/odometer dial face shall be illuminated when the headlamps or parking lamps are illuminated.

b. Procedure.

(1) Visually inspect the vehicle body components for conformance to Requirements 10.a.(1); (2)(a); (5)(a) and (b); (9)(a), (b), (c), (d), and (e); (13); and (14)(a) and (b).

(2) Determine conformance to Requirement 10.a. (6) by visually checking the required markings placed on the glazing material by the glazing material manufacturer or installer.

(3) Visually inspect and measure as indicated to determine conformance with Requirements 10.a.(2)(b); (4); (5)(c); (7)(a), (b), (c), and (d).

(4) Visually inspect and operate the component(s) to determine conformance to Requirements 10.a.(2)(c); (3)(a) and (b); (8)(a), (b), and (c); (11)(a), (b), and (c); (12); and (14)(c) and (d).

(5) Visually inspect for conformance of Requirement 10.a.(10).

11. Vehicle Frame.

a. Requirements.

(1) Frame. A reconstructed vehicle shall be equipped with a frame consisting of structural beams or channels, or structural tubing, or unitized construction capable of supporting the vehicle, its load, and the torque produced by the power source under all conditions of operation. The frame structure shall be essentially rigid, free of cracks and visual indications of weakness, such as bending or buckling.

(2) Floor Pan. A reconstructed vehicle shall be equipped with a floor pan which:

(a) Covers the area beneath the passenger compartment and any cargo (luggage) compartment that is not entirely separate from the passenger compartment. (Entirely separate means that there are no components shared by both compartments, such as roof, floor, or sides.); and

(b) Is capable of supporting the weight of the number of occupants, including seats and any cargo the vehicle is designed to carry; and

(c) Has sufficient strength to adequately anchor the seats and safety belts; and

(d) Is free of openings which are not sealed or provided with covers which are specifically designed to prevent the transit of fumes and airborne particles.

(3) Bumpers. A reconstructed vehicle shall be equipped with a bumper on the front and on the rear of the vehicle with the exception of trucks, utility and special motor vehicles where the original or predominant body configuration, provided by a recognized manufacturer, did not include such bumper or bumpers in the design of the vehicle. OEM or OREP bumpers are acceptable.

Whenever the bumpers installed on a reconstructed vehicle are altered, modified, replaced, or whenever the vehicle ground clearance height has been altered or modified, the bumpers installed on the vehicle shall:

(a) Conform with the requirements of the bumper height law (Act 291, SLH 1984).

(b) Be of a sturdy construction; and

(c) Be securely attached to the vehicle with attaching components specifically designed for the purpose which are equivalent in strength to the bumper; and

(d) Have no pointed projections or sharp edges; and

(e) Have a smooth outward face.

b. Procedure.

(1) Visually inspect the frame, floor pan, and bumpers for conformance to Requirements 11.a.(1); (2)(a) and (d); and (3)(a), (b), (c), and (d).

(2) Conformance with Requirement 11.a.(2)(b) shall be deemed to exist if there is no visible flexing of the floor pan when an adult occupant enters or leaves the seat, or when moderate horizontal pressure is applied to the top of the seat back in any direction.

(3) Conformance to Requirement 11.a.(2)(c) shall be deemed to exist if there is no flexing of the floor pan when any muscular force is applied to the seat belts that are anchored to the floor pan.

12. Welding.

a. Requirements. All welding on structural (load bearing) components and mechanical control components on a reconstructed vehicle shall be:

(1) Accomplished with a type of welding appropriate to the material being welded.

(2) The owner shall be totally responsible for all damages and bodily injuries incurred by others due to failure or inferior workmanship of any welding work performed on structural components and mechanical control components of a reconstructed vehicle.

b. Procedure.

(1) Visually examine all welds made on structural or mechanical control components to insure that all welds are smooth, complete, and otherwise in conformance with Requirement 12.a.(1); and

(2) If the welding appears to be of doubtful quality, invoke the specifications of Requirement 12.a.(2).

III. INSPECTION STANDARDS, CRITERIA AND PROCEDURES - MOTORCYCLES

The inspection standards and procedures contained in this Part apply to both two-wheeled and three-wheeled motorcycles unless different standards and procedures are specified.

1. Vehicle Identification. The inspection requirements and procedures for the identification of reconstructed motorcycles are the same as those set forth for passenger cars and trucks in Part II.1.a and b. of this Appendix.

2. Power Unit (Engine or Motor)

a. Requirements. Every power unit that has been replaced with a power unit that is not an OREP power unit for the motorcycle, and every power unit that has been relocated to a position in the motorcycle other than that provided by the original recognized manufacturer of the motorcycle shall:

(1) Be mounted in a position that does not interfere with the driver's control of the motorcycle; and

(2) Be securely fastened to the motorcycle frame with bolts and mounting hardware designed to accommodate the power unit; and

(3) Have suitable screening or shielding provided for all moving parts and components which may cause personal injury and are accessible to inadvertent contact by the motorcycle driver or passengers; and

(4) Be correctly described on the application form.

b. Procedure.

(1) Visually inspect for conformance to the location, mounting, and shielding requirements; and

(2) Have applicant operate the power unit to determine compliance with the control requirements; and